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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,520	05/11/2001	Stephen Temple	27754/21717	6788

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,520

Applicant(s)

TEMPLE ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The applicant(s) amendment filed 1/9/04 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1, 7-14 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Publication EP 0 505 065, referred to hereinafter as EP'065.

EP'065 discloses a method of manufacturing a component of a droplet deposition apparatus comprising: attaching a body of piezoelectric material 2 (in Fig. 3a) to a surface of a base (substrate 1); depositing a layer of conductive material so as to extend continuously over the surface of the base and channel surfaces to provide an electrode 8 on each channel surface (grooves 3) and a conductive track (wiring pattern 9 in Fig. 5a) on the surface of the base, the conductive track 9 being integrally and continuously connected to the electrode (see sequence of Figs. 5a-5b and col. 5, lines 43+).

Regarding Claims 7-9, EP'065 teaches that the electrodes 8 are patterned and electrically isolated for different channels (as shown in Fig. 1) through the use of a mask 6 (in Fig. 4a) and that the conductive tracks (wiring pattern 9) are also electrically isolated from each other (as shown in Fig. 5c).

Regarding Claims 10-13, EP'065 shows in the sequence of Figures 3a and 3b that the body 2 is attached to the base 1 prior to forming channels (grooves 4) in both the body and the

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base. The channels formed in the piezoelectric body 2 and the base 1 are each formed by removing material or regions in each of the body and base. In Figure 1, discrete walls 2 of piezoelectric material are formed as a result of removing regions from at least the body.

Regarding Claim 14, EP'065 teaches chamfering the body 2 adjacent to the base 1 by the curved surface formed on the right side of the body and the base in Figure 3b.

Claim Rejections - 35 USC § 103

4. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'065 in view of Ochiai et al 5,193,256.

EP'065 teaches the claimed manufacturing method as relied upon above. EP'065 does not teach removing regions of the layer of conductive material to define the electrodes.

Ochiai teaches forming a layer of electrodes 7 in channels in which portions or regions of the layer of electrodes are removed to pattern the electrodes (see col. 4, lines 18-30). It is noted that the electrodes and channels formed by Ochiai (in Fig. 5) are identical to the electrodes and channels formed by EP'065 (in Fig. 1).

Regarding Claim 6, the claimed "land" is read as the top surface of the piezoelectric body 2 joined with plate 8 in Ochiai and the removal of the layer of conductive material, i.e. strip of conductive material, occurs at this land or top surface. The "land" is between neighboring channels 10 (as shown in Fig. 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the electrodes of EP'065 by an alternative process of removing regions

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of the layer of conductive material, as taught by Ochiai, to form art recognized equivalent droplet deposition apparatuses having identical structure in electrodes.

5. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'065 in view of European Patent EP 0 397 441, referred to hereinafter as EP'441.

EP'065 discloses the claimed manufacturing method as relied upon above. EP'065 does not teach removing regions of the layer of conductive material to define conductive tracks.

EP'441 shows forming conductive tracks by local vaporization with a laser beam to pattern conductive material (see col. 7, lines 25+). The benefits of the above patterning process provides a faster more economic manufacturing process (see col. 6, lines 38-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the conductive tracks of EP'065 by alternatively patterning with the local vaporization taught by EP'441, to provide a faster, more economical manufacturing process.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP'065.

EP'065 teaches the claimed manufacturing method as relied upon above. The embodiment (Figures 1-5) relied upon in EP'065 does not mention an adhesive.

However, the embodiment of Figures 10a-10b teaches the use of an adhesive 15 to attach the base to the body to prevent the any deterioration of the body through heat (see col. 10, lines 42-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified one embodiment of EP'065 by the use of an adhesive as taught by another embodiment of EP'065, to positively prevent any deterioration of the body through heat.

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7. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'065 in view of Ochiai et al, as applied to claims 1 and 2 above, and further in view of EP'441 for the same reasons set forth in Paragraph No. 5 above.

Response to Arguments

8. Applicant's arguments filed 1/9/04 (in Paper No. 18) have been fully considered, but have not been deemed to be found as persuasive.

In regards to the merits of EP'065 as the examiner understands the applicants' remarks (pages 5-6 of Paper No. 18), it appears that the applicants' are saying the EP'065 does not teach "depositing a layer...on said surface of the base" (lines 5-8 of Claim 1).

The examiner most respectfully disagrees and EP'065 fully satisfies the above limitations for the following reasons. To reiterate, the claimed "body" in EP'065 is read as piezoelectric material 2 and the claimed "base" is read as substrate 1. The claimed "surface of the base" is read as the top surface of the substrate 1. After the body 2 is attached to the base 1, a layer of conductive material 8, 9 is deposited to extend continuously over both the top surface of the base 1 and over one of the channel surfaces (grooves 3) to provide an electrode 8 on each channel surface and a conductive track 9 **on** the top surface of the base 1 (note the sequence of Figs. 5a-5b).

The examiner agrees with the applicants' assertion that at the time when depositing of the conductive material occurs, the body (piezoelectric material 2) completely covers the surface, or top surface, of the base 1 leaving no top surface of the base exposed. However, the examiner has broadly read the terms of "over" (line 6 of Claim 1) and "on" (line 8 of Claim 1) in that the

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conductive material does not have to directly contact the top surface of the base 1. First, the claim does not preclude that any material, i.e. piezoelectric material 2, can coexist between the conductive material 8, 9 and the top surface of the base 1. Second, the claim *does not recite that the conductive material directly contacts the surface of the base or that a portion of the base has to be exposed*. Because the conductive material 8, 9 is deposited in such a manner that it is *over and on top* of the top surface of the base 1 even with the body 2 lying in-between, the limitations of “depositing a layer...on said surface of the base” (lines 5-8 of Claim 1) are fully satisfied by EP’065.

The applicants’ also mention the limitations of “the body being attached...discontinuities” (lines 3-4 of Claim 1) as in what appears to be an attempt to say that when the conductive material is deposited on the surface of the base, the surface of the base is free of substantially discontinuities. Again, the examiner traverses in that the limitations directed to the discontinuities are recited in the preamble and does not breath any life and meaning into the body, i.e. method steps, of the claims. The method steps recited in the body of the claim are able to stand alone. *In re Hirao*, 535 F.2d 67 190 USPQ 15 (CCPA 1976). Furthermore, the examiner has broadly interpreted these limitations in the preamble as being directed to the surface of the base free of discontinuities as to occurring only when the body is attached to the base, not when any conductive material is deposited.

In summary above, it appears that what the applicants’ are arguing is not equivalent to what is being recited in the claims where the applicants’ are arguing more specifically than that which is claimed. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26

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USPQ2d 1057 (Fed. Cir. 1993). It also appears that further limitations are needed to provide a more specific interconnection between the deposition of the conductive material and the surface of the base.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



A. Dexter Tugbang
Primary Examiner
Art Unit 3729

March 19, 2004